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ABSTRACT

Differences in classroom behavior and adjustment between two groups of low-income, black children were investigated in a continuing study, as subjects approached their eighth birthday. Eight experimental and nine control subjects, who had been differentially exposed to postpartum contact with their mothers and who differed in maternal language patterns and personality variables, were evaluated by their second grade classroom teacher. The teacher used the Devereaux Elementary Behavior Scale, a measure which identifies overt potential problem behavior. Findings indicated that children who had had 16 extra hours of early and extended contact with their mothers at birth and who had experienced richer language, more complex language, more early recognition of their separateness, less controlling maternal behavior, more freedom to express themselves with more positive maternal feedback at 2 years of age showed at 8 years of age greater expressive ability, confidence, self-awareness, and creativity. These 8-year-old experimental group children had greater ability to share feelings and personal incidents than control group children. They had less anxiety about achievement, more independence, and coped with authority better than control children. They obeyed directions better, checked on the quality of their work more, and followed it to completion. They also had closer and more positive personal involvement with teachers and peers. (Author/RH)

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ABSTRACT

The Effects of Postpartum Contact and Early Maternal Language Patterns on Development and Learning at Age Eight

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This study was designed to explore differences in classroom behavior and adjustment between two groups of low-income children (eight experimental, nine controls) as they approached their eighth birthday. They were randomly selected from the original longitudinal study (1970) to determine the effects of early mother-infant contact on later maternal and child behavior. The infants had been differentially exposed to postpartum contact with their mothers. In 1972 when the children were two years old, a study of their linguistic environment revealed differences in maternal language patterns between groups. All mothers were primiparous, black and of lower socio-economic status as designed by the Hollingshead (1958) Index of Social Position. The data at two was taken from (1) an interview (parent, examiner, and child), and (2) a free-play period (mother and child alone). Two observers through a one-way mirror viewed and simultaneously transcribed all dialogue and interaction. Transcriptions of all dialogue were tape-recorded and analyzed for language forms, class, functions, and meanings. Observers and transcribers did not know to which group the mother-child dyads belonged. Observer reliability scores were .98.

The results of the Mann Whitney U Test used to statistically evaluate the two-year-old studies suggested that the linguistic behaviors of the young child

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might be shaped by hospital practices which allowed a mother to spend a few additional hours with her newborn infant immediately following delivery, and the linguistic environment these early and extended contact mothers provided when their children were two (using more illustrative and complex language and showing a greater awareness of their child's growing needs, and better assessment and interpretation of their child's widening external environment) might affect the child's language and learning into the future.

When the children were five years old, results of a study found that among the extra contact pairs, several dimensions of maternal speech to their children at age two were related to their children's performance at age five, suggesting that among certain mother-child pairs maternal speech is associated with children's late speech and language comprehension. Yet another observation when the children were five, revealed, using T Tests to determine differences between means and Pearson's Product Correlation Coefficient to determine linear relationship between groups, that experimental mothers were less controlling, using three times fewer prohibitions with their five years olds than control mothers, and asked twice as many questions as control mothers. Experimental children at five were found to be two and one-half times more friendly and self-aware than control children and shared their feelings seventeen times more than control children. Experimental children's total interaction score with their mothers was twice that of control group children. They also asked twice as many questions at five than children who had not experienced early and extended postpartum contact with their mothers and were not exposed to differences in their linguistic environment at age two. These five-year-old

experimental group children also exhibited greater comprehension of more complex language forms than their control group peers.

In this study, these same children at age eight were evaluated by their second grade classroom teacher using The Devereaux Elementary Behavior Scale (DEBS) which identifies overt potential problem behavior. From the findings of a two-way analysis of variance performed, children who had had sixteen extra hours of early and extended contact with their mothers at birth and who had experienced richer language (more questions, more adjectives, more and varied vocabulary), more complex language (conjunctions, prepositions, more words per proposition, more questions), more early recognition of their separateness, less controlling maternal behavior, more freedom to express themselves with more positive maternal feedback at two years showed at age eight greater expressive ability, confidence, self-awareness, and creativity. These eight-year-old experimental group children had greater ability to share feelings and personal incidents than control group children. They had less anxiety about achievement, more independence, and coped with authority better than control children. They obeyed directions better, checked on the quality of their work more, and followed it to completion. They also had closer and more positive personal involvement with teachers and peers.

These results may indicate extended and early contact at birth and the maternal interaction and language patterns it fosters may affect the child's ego strength development, learning and behavior well into the future. These results follow a similar pattern to previous ones found for this continuing study.

The Effects of Postpartum Contact and Early Maternal Language Patterns on Development and Learning at Age Eight

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Studies and clinical observations have suggested that early and extended postpartum contact of a mother and her newborn infant following delivery may affect maternal behavior and attachment which may in turn affect the child's learning and development into the future.

To see if postpartum contact affects a child's behavior over time, a pilot study continuing a longitudinal study begun in 1970 between two groups of primiparous children and their parents, was done as the children approached their eighth birthday.

This study examines whether there are differences in behavior of seventeen children, eight (four males, four females) in the experimental group randomly selected from the original longitudinal study who had experienced sixteen more hours of postpartum contact with their mothers within the first three days after birth and nine eight years olds (five males, four females) randomly selected from the original control group who had experienced the traditional hospital routine after delivery. Their classroom teacher using the Devereaux Elementary Behavior Scale (DEBS) evaluated their behavior at the end of their second grade in school.

In the original study two groups of primiparous mothers of full-term healthy newborns were randomly selected and each given different amounts of

contact with their infants in the first hours and days after delivery. The routine care or control group had the traditional amount of contact with their infants, a glimpse shortly after birth, brief contact and indentification at 6 to 12 hours, and visits for 20 to 30 minutes every four hours for bottle feedings. In addition to the routine contact, mothers in the early and extended contact experimental group were given their infants with a heat panel overhead for one hour within the first three hours after birth and five extra hours of contact each afternoon in the first three days after delivery, experiencing an additional 16 hours of contact with their babies.

Results at one month and at one year showed differences in maternal behavior between the groups. At two years, a third study and observation was done with these same mothers and their first born focusing on linguistic behavior. Distinct differences were again noted between the two groups of mothers in the linguistic environment they provided. Mothers in the early and extended contact group used fewer content words ($P<, .001$) (primarily high information words such as nouns considered less complex language), and more adjectives ($P<, .02$) in communicating with their children than mothers of the control group. They also asked more questions ($P<, .05$), expressed fewer commands ($P<, .01$), and used more words per proposition. The mean length of utterance (MLU) was significant at ($P<, .001$) level. They used a greater variety of utterances as well, suggesting a richer vocabulary and more function words (conjunctions and prepositions), considered more complex language.

At five the children and their mothers again returned to the hospital where three standardized tests of intellectual and linguistic functioning were given to the children. The relationship between maternal speech patterns to

their two-year-old children and their child's intellectual and linguistic performance at five were calculated using Pearson's Product Moment Correlations.

Among the extra contact pairs, the words per proposition mothers used with their two year olds related to their child's ability at five to understand phrases with three critical elements (as in big dog sitting) ($r=.76$, $p<.01$) and four critical elements (as in big dog sitting on the chair) ($r=.89$, $p<.001$). The number of adjectives used by the mother when the child was two related to their five year old's IQ ($r=.75$, $p<.01$).

A two-way analysis of variance was used to determine differences in the children's performance at five as a function of their early postpartum experience with group and sex as independent factors. Results showed no difference between mean scores of the two groups of children on any of the tests.

However, the variables measured in maternal speech showing a significant relationship with the children's later speech and language comprehension ability at five, occurred only among mother-child pairs who experienced extra contact in the early postpartum period. Not one significant correlation existed among controls without extra contact.

These findings infer that among these lower-class young women extra contact enhanced their relationship with their infants and were susceptible to each other's influence in both pre-verbal and verbal stages of interaction.

In this pilot study, seventeen children--nine control group children and eight experimental group children--were randomly selected from the original longitudinal study to determine any differences in their classroom behavior as perceived by their second grade teachers when the children were nearly eight years old. The children in the experimental group had experienced sixteen more

hours of postpartum contact with their mothers within the first three days after birth (one hour in the first three hours and five hours for the next three days), and control group children had experienced the traditional hospital routine only (a glimpse shortly after birth, brief contact and identification at 6 and 12 hours, and visits for 20 to 30 minutes every four hours for bottle feeding).

School superintendents sent in the Devereaux Elementary School Behavior Rating Scale (DEBS) evaluated in April and May of 1978 by the children's second grade teachers.

The Devereaux Elementary School Behavior Rating Scale (DEBS) is used in the first six grades of elementary school as a means of identifying and measuring classroom behaviors. It can also be used as an on-going record of classroom behavioral adjustment, changes in behavior through time, as well as a research device for obtaining measures of behaviors by those involved with the child in the classroom setting related to learning.

In the Devereaux Elementary School Behavior Rating Scale, eleven overt potential problem behavior factors are judged: (1) Classroom Disturbance, (2) Impatience, (3) Disrespect-Defiance, (4) External Blame, (5) Achievement Anxiety, (6) External Reliance, (7) Comprehension, (8) Inattentive-Withdrawn, (9) Irrelevant Responses, (10) Creative Initiation, (11) Need for Closeness to the Teacher.

Each factor measured consists of three to five items of classroom behavior found to be relevant to classroom achievement or adjustment. All items are rated independently of all others to eliminate any tendency to try to create a pattern of behavior.

The essential mean and significance of each factor and its items are listed below:

Factor 1: Classroom Disturbance

This item taps disturbances of behaviors measuring the extent to which the child's behavior is active, social (though inappropriate) and disruptive or obstreperous. These behaviors usually necessitate teacher imposition of controls and structure in order to guide the child back to the work assigned. These behaviors usually disrupt the classroom functioning of others and interrupt the flow of work.

Factor 2: Impatience

This factor is concerned with an inappropriate drive to enter and to complete the work assigned. High scores reflect a tendency to surge forward in work before getting directions straight, never looking back or thinking much about the quality and neatness of the educational product. There appears to be an underlying common element of impatience or impulsivity and related absence of reflectiveness when work is assigned.

Factor 3: Disrespect-Defiance

The items in this factor tap the extent to which the child manifests open disrespect for or resistance to the school, subject matter, and teacher.

Factor 4: External Blame

This factor measures the extent to which the child expresses the feeling that it is the external circumstances (the teacher, the work) which are the sources of his difficulties. The child may not feel capable of meeting the demands of the learning situation and feels that success or failure is not self-determined, but completely a consequence of the external demands and judgments of the teacher.

Factor 5: Achievement Anxiety

There is in this factor evidence of an outward display of disturbances (worry and upset) concerning the inability to meet the achievement demands of the teacher or school situation. Highly anxious children generally do more poorly in academic areas than less anxious peers.

Factor 6: External Reliance

This factor taps the degree of the child's inability to make independent decisions, to hold opinions, and to take independent action without the support and direction of others. There is an over dependence upon external structure and support in order to function in the academic setting.

Factor 7: Comprehension

A low score suggests a child is having a problem in comprehending the day-to-day work demanded by the curriculum and teacher. The child may not be getting the point of what is being taught and cannot make generalizations from the information, or the child may not be able to retain or produce the material when necessary (attention span).

Factor 8: Inattentive-Withdrawn

This factor suggests the tendency to lose contact with what is going on in class for those with high scores. The youngsters may be unable to maintain attention, lose attention rapidly, become self-absorbed in thoughts unrelated to class activities.

Factor 9: Irrelevant Responsiveness

This factor taps the extent to which the child's verbal responses in class are irrelevant, intrusive, and/or exaggerated or untruthful.

Factor 10: Creative Initiative

Scores in this factor are positively related to achievement, measuring the degree to which the child exhibits active personal involvement, and positive motivation to contribute to the classroom learning situation. A high score reflects a child who tends to become constructively and personally involved and actively initiates behavior and ideas which are relevant to the classroom work. Achieving youngsters display more of this behavior than unsuccessful peers.

Factor 11: Need for Closeness to the Teacher

This factor measures the extent to which children like to be close to, seek out, and offer to do things for the teacher. High scores suggest the teacher is positively valued as a person.

Results

In general, all the children scored within the standards developed for these scales. The control group's mean scores on three factors--External Blame, Achievement Anxiety, External Reliance--were higher than those scores for the early contact group. For these three factors a high score indicated less adjustment in the classroom setting. There were no significant differences between the groups on these factors.

A two-way analysis of variance was performed using the variables group and sex. No significant differences were found for the main effects of sex. On factor, "Creativity," was significant between groups ($F=4.71$, $df=1,13$, $<=.02$). The early contact group was rated as being more involved in their classroom activities than those in the control group. As a subscale item under "Creativity," "Acts Imaginative" was significantly different as the group main effect ($f=7.14$, $df=1,13$, $<=.02$).

Again, the early contact group's mean was rated higher than the control group. (Factor 10, "Creative Initiative," measures the degree to which a child exhibits active personal involvement in and positive motivation to contribute to the classroom learning situation. A high score reflects a child who tends to become constructively and personally involved and actively initiates behavior and ideas which are relevant to the classroom work. Item 4, "Active Imagination," refers to such behaviors as telling of stories or describing things in an interesting and colorful fashion, having an active imagination.)

Two other subscale items showed differences of the main effect of group. The subscale item for Impatience, "Goes Back" ($F=4.84$, $df=1,13$, $p=.05$), and subscale item for Defiance, "Defy Teacher" ($F=6.16$, $df=1,13$, $p=.03$). The early contact group was rated lower than control group for "Goes Back." The early contact group was also rated lower than the control group for "Defy Teacher." Factor 2, "Impatience," is concerned with an inappropriate drive to enter into and to complete the work assigned. High scores reflect a tendency to surge forward in work before getting directions straight. Item 4 under Impatience suggests the child is unwilling to go back, never looking over his work or thinking much about the quality and neatness of the educational product.

Factor 3, "Disrespect-Defiance," taps the extent to which the child manifests open disrespect for or resistance to the school, subject matter being taught, and the teacher. Concerns about the child adapting to group learning are raised here. Item 7, "Act Defiance," suggests the child will not do what he is asked to do saying, "I won't do it," for example.

Though not significant, other scores of the extended contact eight year olds were consistently higher or lower as appropriate to DEBS behavior norms of acceptable classroom behaviors than the control children. They felt closer to their teacher (15.8 vs. 12.11); "quit" work less (2.75 vs. 3.22); worked less slowly (2.62 vs. 3.67). They had lower "External Blame" scores (6.25 vs. 12.66) and lower "Achievement Anxiety" scores (10.12 vs. 16.56).

GROUP MEANS
(n=17)

		Early Contact (n=8)		Control (n=9)	
	Factor	Means	SD	Means	SD
1.	Class Disturbance	11.37	3.58	13.11	4.76
2.	Impatience	9.37	3.25	12.67	3.64
3.	Disrespect-Defiance	5.37	1.85	7.00	2.74
4.	External Blame	6.25	1.75	12.66	3.67
5.	Achievement Anxiety	10.12	1.64	16.56	3.95
6.	External Reliance	14.50	3.46	15.89	4.17
7.	Comprehension	13.50	2.33	12.44	2.45
8.	Inattentive Withdrawal	9.12	5.46	11.22	3.77
9.	Irrelevant-Responsiveness	8.00	2.14	8.56	2.90
10.	Creative Initiative	12.50	3.17	9.67	2.78*
11.	Closeness to Teacher	15.80	4.88	12.11	4.59
12.	Unable to Change	2.37	1.68	2.67	1.22
13.	Quits	2.75	1.58	3.22	1.39
14.	Slow Work	2.62	1.60	3.67	1.87

SIGNIFICANT DIFFERENCES ONLY

GROUP MEANS

	Early Contact		Control	
Factor	Mean	SD	Mean	SD
Impatience	9.37	3.25	12.67	3.64
Goes Back	2.13	.96	3.83	1.89* (.05)
Defiance	5.37	1.85	7.00	2.74
Defy Teacher	1.00	0.0	1.75	.85 (.03)
Creativity	12.50	3.17	9.67	2.78* (.05)
Acts Imaginative	12.50	2.70	9.57	2.77* (.02)

ANOVA GROUP DIFFERENCES

Factor/Item	F	df	Significance Level
Impatience	4.15	1,13	.06
Goes Back	4.84	1,13	.05*
Defiance	1.66	1,13	.20
Defy Teacher	6.16	1,13	.03*
Creativity	4.71	1,13	.05*
Act Imaginative	7.14	1,13	.02*

Discussion

The children in the experimental group, those who had had early and extended contact with their mothers at birth, scored significantly higher in creativity at age eight than children in the control group who had experienced the regular hospital nursery routine that was prevalent at the time of their birth. Higher creativity scores indicate more personal involvement in the class, greater expressive ability sharing ideas, stories, personal incidents with the group, and doing so more colorfully.

It may be that scores reflect the effects of the condition assigned in the original study and of the early mother-child interactions of the dyads.

When the children were two, maternal speech of experimental mothers was more descriptive, complex, perceiving the children as separate individuals with responses expected from them by use of more questions. Experimental mothers used longer phrases and vocabularies that were more varied and richer in talking to their two year olds. They were far less controlling than control mothers (2.5 times less).

At five years of age, experimental children showed greater expressive ability which correlated with their mother's use of more complex speech to them at two. (Expressive ability continued at eight as exhibited in classroom oral presentations.) Two other pilot studies performed at age five (N of 10 dyads, and N of 6 dyads) revealed experimental children to have greater freedom in expressing feelings and having more interpersonal relationships with their mothers than control group children. (The children at eight were better

able to share personal incidents, showed a greater feeling of closeness to their teacher, responded more to the group than their control group peers.)

Eight-year-old experimental children's greater creativity might be a function of their early postpartum condition of early mother-infant interaction and of the linguistic environment to which they were exposed. Less controlling experimental mothers, early recognition of their child's separateness, more positive feedback may have contributed to the development of greater ego strength in experimental group children. Experimental mothers' use of more descriptive and more complex and richer language may have allowed for greater expressive ability creating confidence and self-awareness in their children permitting their greater expressive ability to become functional. At five the children who had had early and extended contact at birth expressed feelings more and had more personal interaction with their mothers suggesting a greater freedom to express themselves and to have a closer relationship with her. At eight experimental children were better able to relate to their teacher with a feeling of closeness, to authority, and to their peers than control children. This early postpartum contact and the ensuing environment to which they were exposed may have allowed for better adjustment as viewed in their behavior in the classroom.

Summary

The scores on the Devereaux Elementary School Behavior Rating Scale (DEBS) of eight-year-old experimental group children, who had had early and extended postpartum contact with their mothers at birth and who were exposed

to a richer linguistic and interactional environment at two years of age, were more appropriate to norms of acceptable classroom behavior than their control group peers who had experienced the regular hospital nursery routine practiced at the time of their birth, and had not been exposed to different maternal linguistic patterns at two years. Experimental children showed significantly greater creativity exhibiting active personal involvement in the classroom activities, indicating positive motivation, and contributing colorfully to the classroom learning situation. They actively initiated behavior and ideas that were relevant. They showed expressive ability relating ideas and personal incidents. Scores indicated that experimental children blamed external sources for their problems less than control children, showed greater responsibility for their acts, had greater self-reliance, and followed through in doing their work and in following directions, getting instructions straight before proceeding, and showing more concern for the quality of their academic product than control peers. They were less anxious about achievement, less dependent on others suggesting greater inner strength, self-esteem, and greater motivation and self-direction. They also could cope better with authority, school requirements, and demands than control children. They were able to have closer relationships with their teacher and with their peer group. They involved themselves better with their learning environment. Experimental eight year olds at the end of their second year of school as evaluated by their classroom teacher seemed to show a greater potential for learning and achievement, adjustment, and social success than their control group peers. Their behaviors suggest greater ego strength than control group children.

These results suggest that early and extended postpartum mother-child contact and interaction and the linguistic environment it fosters may affect their child's development and learning well into the future.